



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

SCIENCE

EDITORIAL COMMITTEE : S. NEWCOMB, Mathematics ; R. S. WOODWARD, Mechanics ; E. C. PICKERING, Astronomy ; T. C. MENDENHALL, Physics ; R. H. THURSTON, Engineering ; IRA REMSEN, Chemistry ; J. LE CONTE, Geology ; W. M. DAVIS, Physiography ; O. C. MARSH, Paleontology ; W. K. BROOKS, C. HART MERRIAM, Zoology ; S. H. SCUDDER, Entomology ; N. L. BRITTON, Botany ; HENRY F. OSBORN, General Biology ; H. P. BOWDITCH, Physiology ; J. S. BILLINGS, Hygiene ; J. McKEEN CATTELL, Psychology ; DANIEL G. BRINTON, J. W. POWELL, Anthropology.

FRIDAY, NOVEMBER 27, 1896.

CONTENTS:

<i>The National Academy of Sciences</i>	769
<i>Recent Advances in Malacology</i> : WM. H. DALL	770
<i>A Study of the Colon Bacillus Group, and especially of its Variability in Fermenting Power under Different Conditions</i> : ADELAIDE WARD PECKHAM.....	773
<i>Superheated Steam in Steam Engines</i> : R. H. THURSTON	778
<i>On Certain Physical Difficulties in the Construction of Large Guns</i> : W. LECONTE STEVENS	782
<i>Ontogeny and Phylogenetic Variation</i> : HENRY F. OSBORN.....	786
<i>Current Notes on Anthropology</i> :— Paris School of Anthropology; An Archaeological Map of Ohio : D. G. BRINTON	789
<i>Astronomical Notes</i> : H. J.	790
<i>Notes on Inorganic Chemistry</i> : J. L. H.....	790
<i>Scientific Notes and News</i>	791
<i>University and Educational News</i>	794
<i>Discussion and Correspondence</i> :— An Optical Illusion : J. MARK BALDWIN. Le Conte's Elements of Geology : C. W. HALL.....	794
<i>Scientific Literature</i> :— Zimmermann's Morphologie und Physiologie des Pflanzlichen Zellkernes : CONWAY MACMILLAN. Brinton's The Myths of the New World : ALICE C. FLETCHER.....	797
<i>Scientific Journals</i> :— Astrophysical Journal ; The American Geologist.....	799
<i>Societies and Academies</i> :— The Geological Society of Washington : W. F. MORSELL. The Entomological Society of Washington : L. O. HOWARD. The Academy of Natural Sciences of Philadelphia : EDWARD J. NOLAN. The Academy of Science of St. Louis : WILLIAM TRELEASE.....	801
<i>New Books</i>	804
MSS. intended for publication and books, etc., intended for review should be sent to the responsible editor, Prof. J. McKeen Cattell, Garrison-on-Hudson, N. Y.	

THE NATIONAL ACADEMY OF SCIENCES.

A SCIENTIFIC session of the National Academy of Sciences was held at Columbia University, New York, on Tuesday and Wednesday, November 17th and 18th, and a business meeting was held on November 18th to consider the report of the President of the Academy to Congress. The President of the Academy, Prof. Wolcott Gibbs, was prevented by illness from being present, and the sessions were presided over by President F. A. Walker, the Vice-President of the Academy. The following members were present: Henry L. Abbot, J. A. Allen, George F. Barker, Carl Barus, John S. Billings, Henry P. Bowditch, William H. Brewer, Charles F. Chandler, Cyrus B. Comstock, Edward D. Cope, Edward S. Dana, Samuel F. Emmons, Benjamin A. Gould, Arnold Hague, Asaph Hall, Charles S. Hastings, George W. Hill, Joseph Le Conte, O. C. Marsh, Alfred M. Mayer, Richmond Mayo-Smith, T. C. Mendenhall, Arthur Michael, A. A. Michelson, S. Weir Mitchell, Simon Newcomb, A. S. Packard, Charles S. Pierce, Ira Remsen, Ogden N. Rood, Henry A. Rowland, Charles S. Sargent, A. E. Verrill, Francis A. Walker, William H. Welch, R. S. Woodward. There were thirty-six members in attendance, seven more than at the corresponding meeting a year ago at Philadelphia. The following papers were entered to be read :

1. *On Certain Positive-Negative Laws in their Relation to Organic Chemistry.* A. MICHAEL.
2. *The Jurassic Formation on the Atlantic Coast.* O. C. MARSH.
3. *The Hydrolysis of Acid Amides.* IRA REMSEN.
4. *The Isomeric Chlorides of Paranimroorthosulphobenzoic Acid.* IRA REMSEN.
5. *The Equations of the Forces Acting in the Flotation of Disks and Rings of Metal, with Experiments showing the Floating of Loaded Disks and Rings of Metal on Water and on other Liquids.* ALFRED M. MAYER.
6. *On the Geographical Distribution of Batrachia and Reptilia in the Medicolumbian Region.* E. D. COPE.
7. *On the Physical Causes of the Periodic Variations of Latitude.* S. NEWCOMB.
8. *On the Solar Motion as a Gauge of Stellar Distances.* S. NEWCOMB.
9. *Memoir of F. B. Meek.* C. A. WHITE.
10. *The Evolution and Phylogeny of Gastropod Mollusca.* A. E. VERRILL.
11. *On Flicker Photometers.* O. N. ROOD.
12. *A New Type of Telescope Free from Secondary Color.* C. S. HASTINGS.
13. *A Graphical Method of Logic.* C. S. PEIRCE.
14. *Mathematical Infinity.* C. S. PEIRCE.

Prof. Willard Gibbs was requested to prepare a biographical notice of the late Prof. H. A. Newton, of Yale University, and Prof. S. P. Langley, a notice of the late Dr. G. Brown Goode. In addition to the serious loss the Academy has suffered in the deaths of Newton and Goode, three of the twenty-two foreign associates have died very recently, Hugo Gyldén, August Kekulé and F. F. Tisserand.

On the evening of Wednesday, November 18th, Mrs. Henry Draper gave a reception to the Academy and invited guests. In the laboratory at her house an exhibit was arranged as follows :

1. (a) Photograph of Delegates to the Kelvin Jubilee, June, 1896; (b) Radiographs, Normal and Pathological, taken by A. W. GOODSPEED, Assistant Professor of Physics, University of Pennsylvania. G. F. BARKER.
2. Plates of Vital Statistics of the 28 Great Cities of the United States. J. S. BILLINGS.
3. Stereoscopic Telescope and Binocular Dissecting Microscope. H. P. BOWDITCH.
4. Optical Glass. Relief Plates in Color. C. F. CHANDLER.

5. Photographs of the new Flying Machine. S. P. LANGLEY.
6. Views of the Liias Formation in the United States. O. C. MARSH.
7. Small Model of Interferometer. A. A. MICHELSON.
8. Photographs illustrating Recent Progress in the Henry Draper Memorial. E. C. PICKERING.
9. Photographs showing the Effect of Pressure on the Spectrum. H. A. ROWLAND.
10. (a) Photographs and Transparencies; (b) Recent Geological Maps. C. D. WALCOTT.

RECENT ADVANCES IN MALACOLOGY.

DURING the past year some notable work has been published, including not only contributions to the natural history of groups, anatomy, material for monographs, etc., but also a certain number of studies which lead to a change in the point of view of whole series of evolutionary processes. As these things are too late for the latest textbooks, and liable to be overlooked by teachers who are not specialists, a brief reference to some of the more important may be useful. A remarkable series of investigations by F. Bernard, on the development of hinge teeth in Lamellibranchs,* is among the most striking in the results which flow from the facts observed on the neopionic stages in many genera.

After the prodiscoconch stage, when the primitive pellicle secreted by the embryonic shell gland is continuous between the valves and the ligament is simply its uncalcified median part, come the neopionic stages of which Bernard has recognized two types among the species examined. One, which is the most common, has the shell oval with an arched dorsal hingeline and convex umbones; the other has a straight hingeline, a more elongated shell and the umbones not projecting. To these might have been added the fresh water *glochidium* and *lasidium*, had species of *Naiades* or *Mutelæ* been among the forms studied. In

* Bull. Soc. Géol. de France, 3me Sér. XXIII., pp. 104-154, and XXIV., pp. 54-82, 412-449, 1896.